

## SEQUENCE LISTING

<110> Medizinische Klinik und Poliklinik A des Universitätsklinikums MÜNSTER

<120> Fusion polypeptides for antivascolar tumor therapy

<130> P 66774

<160> 31

<170> PatentIn version 3.1

<210> 1

<211> 263

<212> PRT

<213> Homo sapiens

<220>

<221> Amino acid sequence of humanem TF

<400> 1

Ser Gly Thr Thr Asn Thr Val Ala Ala Tyr Asn Leu Thr Trp Lys Ser  
1 5 10 15

Thr Asn Phe Lys Thr Ile Leu Glu Trp Glu Pro Lys Pro Val Asn Gln  
20 25 30

Val Tyr Thr Val Gln Ile Ser Thr Lys Ser Gly Asp Trp Lys Ser Lys  
35 40 45

Cys Phe Tyr Thr Thr Asp Thr Glu Cys Asp Leu Thr Asp Glu Ile Val  
50 55 60

Lys Asp Val Lys Gln Thr Tyr Leu Ala Arg Val Phe Ser Tyr Pro Ala  
65 70 75 80

Gly Asn Val Glu Ser Thr Gly Ser Ala Gly Glu Pro Leu Tyr Glu Asn  
85 90 95

Ser Pro Glu Phe Thr Pro Tyr Leu Glu Thr Asn Leu Gly Gln Pro Thr  
100 105 110

Ile Gln Ser Phe Glu Gln Val Gly Thr Lys Val Asn Val Thr Val Glu  
115 120 125

Asp Glu Arg Thr Leu Val Arg Arg Asn Asn Thr Phe Leu Ser Leu Arg  
130 135 140

Asp Val Phe Gly Lys Asp Leu Ile Tyr Thr Leu Tyr Tyr Trp Lys Ser  
145 150 155 160

Ser Ser Ser Gly Lys Lys Thr Ala Lys Thr Asn Thr Asn Glu Phe Leu  
165 170 175

Ile Asp Val Asp Lys Gly Glu Asn Tyr Cys Phe Ser Val Gln Ala Val  
180 185 190

Ile Pro Ser Arg Thr Val Asn Arg Lys Ser Thr Asp Ser Pro Val Glu  
 195 200 205

Cys Met Gly Gln Glu Lys Gly Glu Phe Arg Glu Ile Phe Tyr Ile Ile  
 210 215 220

Gly Ala Val Val Phe Val Val Ile Ile Leu Val Ile Ile Leu Ala Ile  
 225 230 235 240

Ser Leu His Lys Cys Arg Lys Ala Gly Val Gly Gln Ser Trp Lys Glu  
 245 250 255

Asn Ser Pro Leu Asn Val Ser  
 260

<210> 2  
 <211> 2  
 <212> PRT  
 <213> Homo sapiens

<220>  
 <221> Amino acid sequence of tTF<sub>1-218</sub>

<400> 2  
 Ser Gly Thr Thr Asn Thr Val Ala Ala Tyr Asn Leu Thr Trp Lys Ser  
 1 5 10 15

Thr Asn Phe Lys Thr Ile Leu Glu Trp Glu Pro Lys Pro Val Asn Gln  
 20 25 30

Val Tyr Thr Val Gln Ile Ser Thr Lys Ser Gly Asp Trp Lys Ser Lys  
 35 40 45

Cys Phe Tyr Thr Thr Asp Thr Glu Cys Asp Leu Thr Asp Glu Ile Val  
 50 55 60

Lys Asp Val Lys Gln Thr Tyr Leu Ala Arg Val Phe Ser Tyr Pro Ala  
 65 70 75 80

Gly Asn Val Glu Ser Thr Gly Ser Ala Gly Glu Pro Leu Tyr Glu Asn  
 85 90 95

Ser Pro Glu Phe Thr Pro Tyr Leu Glu Thr Asn Leu Gly Gln Pro Thr  
 100 105 110

Ile Gln Ser Phe Glu Gln Val Gly Thr Lys Val Asn Val Thr Val Glu  
 115 120 125

Asp Glu Arg Thr Leu Val Arg Arg Asn Asn Thr Phe Leu Ser Leu Arg  
 130 135 140

Asp Val Phe Gly Lys Asp Leu Ile Tyr Thr Leu Tyr Tyr Trp Lys Ser  
 145 150 155 160

Ser Ser Ser Gly Lys Lys Thr Ala Lys Thr Asn Thr Asn Glu Phe Leu  
 165 170 175

Ile Asp Val Asp Lys Gly Glu Asn Tyr Cys Phe Ser Val Gln Ala Val  
                   180                                  185                                  190

Ile Pro Ser Arg Thr Val Asn Arg Lys Ser Thr Asp Ser Pro Val Glu  
                   195                                  200                                  205

Cys Met Gly Gln Glu Lys Gly Glu Phe Arg  
                   210                                  215

<210> 3  
 <211> 224  
 <212> PRT  
 <213> Artificial

<220>  
 <221> Amino acid sequence of tTF-GRGDSP

<400> 3  
 Ser Gly Thr Thr Asn Thr Val Ala Ala Tyr Asn Leu Thr Trp Lys Ser  
 1                                  5                                  10                                  15  
 Thr Asn Phe Lys Thr Ile Leu Glu Trp Glu Pro Lys Pro Val Asn Gln  
                   20                                  25                                  30  
 Val Tyr Thr Val Gln Ile Ser Thr Lys Ser Gly Asp Trp Lys Ser Lys  
                   35                                  40                                  45  
 Cys Phe Tyr Thr Thr Asp Thr Glu Cys Asp Leu Thr Asp Glu Ile Val  
                   50                                  55                                  60  
 Lys Asp Val Lys Gln Thr Tyr Leu Ala Arg Val Phe Ser Tyr Pro Ala  
 65                                  70                                  75                                  80  
 Gly Asn Val Glu Ser Thr Gly Ser Ala Gly Glu Pro Leu Tyr Glu Asn  
                   85                                  90                                  95  
 Ser Pro Glu Phe Thr Pro Tyr Leu Glu Thr Asn Leu Gly Gln Pro Thr  
                   100                                  105                                  110  
 Ile Gln Ser Phe Glu Gln Val Gly Thr Lys Val Asn Val Thr Val Glu  
                   115                                  120                                  125  
 Asp Glu Arg Thr Leu Val Arg Arg Asn Asn Thr Phe Leu Ser Leu Arg  
                   130                                  135                                  140  
 Asp Val Phe Gly Lys Asp Leu Ile Tyr Thr Leu Tyr Tyr Trp Lys Ser  
 145                                  150                                  155                                  160  
 Ser Ser Ser Gly Lys Lys Thr Ala Lys Thr Asn Thr Asn Glu Phe Leu  
                   165                                  170                                  175  
 Ile Asp Val Asp Lys Gly Glu Asn Tyr Cys Phe Ser Val Gln Ala Val  
                   180                                  185                                  190  
 Ile Pro Ser Arg Thr Val Asn Arg Lys Ser Thr Asp Ser Pro Val Glu  
                   195                                  200                                  205

Cys Met Gly Gln Glu Lys Gly Glu Phe Arg Gly Arg Gly Asp Ser Asp  
 210 215 220

<210> 4  
 <211> 225  
 <212> PRT  
 <213> Artificial

<220>  
 <221> Amino acid sequence of tTF-GNGRAHA

<400> 4  
 Ser Gly Thr Thr Asn Thr Val Ala Ala Tyr Asn Leu Thr Trp Lys Ser  
 1 5 10 15  
 Thr Asn Phe Lys Thr Ile Leu Glu Trp Glu Pro Lys Pro Val Asn Gln  
 20 25 30  
 Val Tyr Thr Val Gln Ile Ser Thr Lys Ser Gly Asp Trp Lys Ser Lys  
 35 40 45  
 Cys Phe Tyr Thr Thr Asp Thr Glu Cys Asp Leu Thr Asp Glu Ile Val  
 50 55 60  
 Lys Asp Val Lys Gln Thr Tyr Leu Ala Arg Val Phe Ser Tyr Pro Ala  
 65 70 75 80  
 Gly Asn Val Glu Ser Thr Gly Ser Ala Gly Glu Pro Leu Tyr Glu Asn  
 85 90 95  
 Ser Pro Glu Phe Thr Pro Tyr Leu Glu Thr Asn Leu Gly Gln Pro Thr  
 100 105 110  
 Ile Gln Ser Phe Glu Gln Val Gly Thr Lys Val Asn Val Thr Val Glu  
 115 120 125  
 Asp Glu Arg Thr Leu Val Arg Arg Asn Asn Thr Phe Leu Ser Leu Arg  
 130 135 140  
 Asp Val Phe Gly Lys Asp Leu Ile Tyr Thr Leu Tyr Tyr Trp Lys Ser  
 145 150 155 160  
 Ser Ser Ser Gly Lys Lys Thr Ala Lys Thr Asn Thr Asn Glu Phe Leu  
 165 170 175  
 Ile Asp Val Asp Lys Gly Glu Asn Tyr Cys Phe Ser Val Gln Ala Val  
 180 185 190  
 Ile Pro Ser Arg Thr Val Asn Arg Lys Ser Thr Asp Ser Pro Val Glu  
 195 200 205  
 Cys Met Gly Gln Glu Lys Gly Glu Phe Arg Gly Asn Gly Arg Ala His  
 210 215 220

Ala  
 225

<210> 5  
 <211> 228  
 <212> PRT  
 <213> Artificial

<220>  
 <221> Amino acid sequence of tTF-GALNGRSHAG

<400> 5  
 Ser Gly Thr Thr Asn Thr Val Ala Ala Tyr Asn Leu Thr Trp Lys Ser  
 1 5 10 15  
 Thr Asn Phe Lys Thr Ile Leu Glu Trp Glu Pro Lys Pro Val Asn Gln  
 20 25 30  
 Val Tyr Thr Val Gln Ile Ser Thr Lys Ser Gly Asp Trp Lys Ser Lys  
 35 40 45  
 Cys Phe Tyr Thr Thr Asp Thr Glu Cys Asp Leu Thr Asp Glu Ile Val  
 50 55 60  
 Lys Asp Val Lys Gln Thr Tyr Leu Ala Arg Val Phe Ser Tyr Pro Ala  
 65 70 75 80  
 Gly Asn Val Glu Ser Thr Gly Ser Ala Gly Glu Pro Leu Tyr Glu Asn  
 85 90 95  
 Ser Pro Glu Phe Thr Pro Tyr Leu Glu Thr Asn Leu Gly Gln Pro Thr  
 100 105 110  
 Ile Gln Ser Phe Glu Gln Val Gly Thr Lys Val Asn Val Thr Val Glu  
 115 120 125  
 Asp Glu Arg Thr Leu Val Arg Arg Asn Asn Thr Phe Leu Ser Leu Arg  
 130 135 140  
 Asp Val Phe Gly Lys Asp Leu Ile Tyr Thr Leu Tyr Tyr Trp Lys Ser  
 145 150 155 160  
 Ser Ser Ser Gly Lys Lys Thr Ala Lys Thr Asn Thr Asn Glu Phe Leu  
 165 170 175  
 Ile Asp Val Asp Lys Gly Glu Asn Tyr Cys Phe Ser Val Gln Ala Val  
 180 185 190  
 Ile Pro Ser Arg Thr Val Asn Arg Lys Ser Thr Asp Ser Pro Val Glu  
 195 200 205  
 Cys Met Gly Gln Glu Lys Gly Glu Phe Arg Gly Ala Leu Asn Gly Arg  
 210 215 220  
 Ser His Ala Gly  
 225

<210> 6  
 <211> 225  
 <212> PRT  
 <213> Artificial

<220>  
 <221> Amino acid sequence of tTF-GCNGRCG

<400> 6  
 Ser Gly Thr Thr Asn Thr Val Ala Ala Tyr Asn Leu Thr Trp Lys Ser  
 1 5 10 15  
 Thr Asn Phe Lys Thr Ile Leu Glu Trp Glu Pro Lys Pro Val Asn Gln  
 20 25 30  
 Val Tyr Thr Val Gln Ile Ser Thr Lys Ser Gly Asp Trp Lys Ser Lys  
 35 40 45  
 Cys Phe Tyr Thr Thr Asp Thr Glu Cys Asp Leu Thr Asp Glu Ile Val  
 50 55 60  
 Lys Asp Val Lys Gln Thr Tyr Leu Ala Arg Val Phe Ser Tyr Pro Ala  
 65 70 75 80  
 Gly Asn Val Glu Ser Thr Gly Ser Ala Gly Glu Pro Leu Tyr Glu Asn  
 85 90 95  
 Ser Pro Glu Phe Thr Pro Tyr Leu Glu Thr Asn Leu Gly Gln Pro Thr  
 100 105 110  
 Ile Gln Ser Phe Glu Gln Val Gly Thr Lys Val Asn Val Thr Val Glu  
 115 120 125  
 Asp Glu Arg Thr Leu Val Arg Arg Asn Asn Thr Phe Leu Ser Leu Arg  
 130 135 140  
 Asp Val Phe Gly Lys Asp Leu Ile Tyr Thr Leu Tyr Tyr Trp Lys Ser  
 145 150 155 160  
 Ser Ser Ser Gly Lys Lys Thr Ala Lys Thr Asn Thr Asn Glu Phe Leu  
 165 170 175  
 Ile Asp Val Asp Lys Gly Glu Asn Tyr Cys Phe Ser Val Gln Ala Val  
 180 185 190  
 Ile Pro Ser Arg Thr Val Asn Arg Lys Ser Thr Asp Ser Pro Val Glu  
 195 200 205  
 Cys Met Gly Gln Glu Lys Gly Glu Phe Arg Gly Cys Asn Gly Arg Cys  
 210 215 220

Gly  
 225

<210> 7  
 <211> 232  
 <212> PRT  
 <213> Artificial

<220>

<221> Amino acid sequence of tTF-GCNGRCVSGCAGRC

<400> 7

Ser	Gly	Thr	Thr	Asn	Thr	Val	Ala	Ala	Tyr	Asn	Leu	Thr	Trp	Lys	Ser	1	5	10	15
Thr	Asn	Phe	Lys	Thr	Ile	Leu	Glu	Trp	Glu	Pro	Lys	Pro	Val	Asn	Gln	20	25	30	
Val	Tyr	Thr	Val	Gln	Ile	Ser	Thr	Lys	Ser	Gly	Asp	Trp	Lys	Ser	Lys	35	40	45	
Cys	Phe	Tyr	Thr	Thr	Asp	Thr	Glu	Cys	Asp	Leu	Thr	Asp	Glu	Ile	Val	50	55	60	
Lys	Asp	Val	Lys	Gln	Thr	Tyr	Leu	Ala	Arg	Val	Phe	Ser	Tyr	Pro	Ala	65	70	75	80
Gly	Asn	Val	Glu	Ser	Thr	Gly	Ser	Ala	Gly	Glu	Pro	Leu	Tyr	Glu	Asn	85	90	95	
Ser	Pro	Glu	Phe	Thr	Pro	Tyr	Leu	Glu	Thr	Asn	Leu	Gly	Gln	Pro	Thr	100	105	110	
Ile	Gln	Ser	Phe	Glu	Gln	Val	Gly	Thr	Lys	Val	Asn	Val	Thr	Val	Glu	115	120	125	
Asp	Glu	Arg	Thr	Leu	Val	Arg	Arg	Asn	Asn	Thr	Phe	Leu	Ser	Leu	Arg	130	135	140	
Asp	Val	Phe	Gly	Lys	Asp	Leu	Ile	Tyr	Thr	Leu	Tyr	Tyr	Trp	Lys	Ser	145	150	155	160
Ser	Ser	Ser	Gly	Lys	Lys	Thr	Ala	Lys	Thr	Asn	Thr	Asn	Glu	Phe	Leu	165	170	175	
Ile	Asp	Val	Asp	Lys	Gly	Glu	Asn	Tyr	Cys	Phe	Ser	Val	Gln	Ala	Val	180	185	190	
Ile	Pro	Ser	Arg	Thr	Val	Asn	Arg	Lys	Ser	Thr	Asp	Ser	Pro	Val	Glu	195	200	205	
Cys	Met	Gly	Gln	Glu	Lys	Gly	Glu	Phe	Arg	Gly	Cys	Asn	Gly	Arg	Cys	210	215	220	
Val	Ser	Gly	Cys	Ala	Gly	Arg	Cys									225	230		

<210> 8  
 <211> 228  
 <212> PRT  
 <213> Artificial

<220>  
 <221> Amino acid sequence of tTF-GCVLNGRMEC

<400> 8  
 Ser Gly Thr Thr Asn Thr Val Ala Ala Tyr Asn Leu Thr Trp Lys Ser  
 1 5 10 15  
 Thr Asn Phe Lys Thr Ile Leu Glu Trp Glu Pro Lys Pro Val Asn Gln  
 20 25 30  
 Val Tyr Thr Val Gln Ile Ser Thr Lys Ser Gly Asp Trp Lys Ser Lys  
 35 40 45  
 Cys Phe Tyr Thr Thr Asp Thr Glu Cys Asp Leu Thr Asp Glu Ile Val  
 50 55 60  
 Lys Asp Val Lys Gln Thr Tyr Leu Ala Arg Val Phe Ser Tyr Pro Ala  
 65 70 75 80  
 Gly Asn Val Glu Ser Thr Gly Ser Ala Gly Glu Pro Leu Tyr Glu Asn  
 85 90 95  
 Ser Pro Glu Phe Thr Pro Tyr Leu Glu Thr Asn Leu Gly Gln Pro Thr  
 100 105 110  
 Ile Gln Ser Phe Glu Gln Val Gly Thr Lys Val Asn Val Thr Val Glu  
 115 120 125  
 Asp Glu Arg Thr Leu Val Arg Arg Asn Asn Thr Phe Leu Ser Leu Arg  
 130 135 140  
 Asp Val Phe Gly Lys Asp Leu Ile Tyr Thr Leu Tyr Tyr Trp Lys Ser  
 145 150 155 160  
 Ser Ser Ser Gly Lys Lys Thr Ala Lys Thr Asn Thr Asn Glu Phe Leu  
 165 170 175  
 Ile Asp Val Asp Lys Gly Glu Asn Tyr Cys Phe Ser Val Gln Ala Val  
 180 185 190  
 Ile Pro Ser Arg Thr Val Asn Arg Lys Ser Thr Asp Ser Pro Val Glu  
 195 200 205  
 Cys Met Gly Gln Glu Lys Gly Glu Phe Arg Gly Cys Val Leu Asn Gly  
 210 215 220  
 Arg Met Glu Cys  
 225



<210> 9  
 <211> 654  
 <212> DNA  
 <213> Artificial

<220>  
 <221> Nucleotide sequence of tTF<sub>1-21</sub>

<400> 9  
 tcaggcacta caaatactgt ggcagcatat aatttaactt ggaaatcaac taatttcaag 60  
 acaatttttg agtggaacc caaaccgctc aatcaagtct acactgttca aataagcact 120  
 aagtcaggag attggaaaag caaatgcttt tacacaacag acacagagtg tgacctcacc 180  
 gacgagattg tgaaggatgt gaagcagacg tacttggcac ggtcttctc ctaccggca 240  
 gggaatgtgg agagcaccgg ttctgctggg gagcctctgt atgagaactc ccagagttc 300  
 acaccttacc tggagacaaa cctcggacag ccaacaattc agagttttga acaggtggga 360  
 acaaaagtga atgtgaccgt agaagatgaa cggacttttag tcagaaggaa caacactttc 420  
 ctaagcctcc gggatgtttt tggcaaggac ttaatttata cactttatta ttggaaatct 480  
 tcaagttcag gaaagaaaac agccaaaaca aacactaatg agtttttgat tgatgtggat 540  
 aaaggagaaa actactgttt cagtgttcaa gcagtgatc cctcccgaac agttaaccgg 600  
 aagagtacag acagcccggt agagtgtatg ggccaggaga aaggggaatt caga 654

<210> 10  
 <211> 672  
 <212> DNA  
 <213> Artificial

<220>  
 <221> Nucleotide sequence of tTF-GRGDSP

<400> 10  
 tcaggcacta caaatactgt ggcagcatat aatttaactt ggaaatcaac taatttcaag 60  
 acaatttttg agtggaacc caaaccgctc aatcaagtct acactgttca aataagcact 120  
 aagtcaggag attggaaaag caaatgcttt tacacaacag acacagagtg tgacctcacc 180  
 gacgagattg tgaaggatgt gaagcagacg tacttggcac ggtcttctc ctaccggca 240  
 gggaatgtgg agagcaccgg ttctgctggg gagcctctgt atgagaactc ccagagttc 300  
 acaccttacc tggagacaaa cctcggacag ccaacaattc agagttttga acaggtggga 360  
 acaaaagtga atgtgaccgt agaagatgaa cggacttttag tcagaaggaa caacactttc 420  
 ctaagcctcc gggatgtttt tggcaaggac ttaatttata cactttatta ttggaaatct 480

tcaagttcag gaaagaaaac agccaaaaca aacactaatg agtttttgat tgatgtggat 540  
aaaggagaaa actactgttt cagtgttcaa gcagtgattc cctcccgaac agttaaccgg 600  
aagagtacag acagcccggg agagtgtatg ggccaggaga aaggggaatt cagaggaaga 660  
ggtgattctc ca 672

<210> 11  
<211> 675  
<212> DNA  
<213> Artificial

<220>  
<221> Nucleotide sequence of tTF-GNGRAHA

<400> 11  
tcaggcacta caaatactgt ggcagcatat aatttaactt ggaaatcaac taatttcaag 60  
acaatttttg agtggaacc caaaccgctc aatcaagtct acactgttca aataagcact 120  
aagtcaggag attggaaaag caaatgcttt tacacaacag acacagagtg tgacctcacc 180  
gacgagattg tgaaggatgt gaagcagacg tacttggcac ggtcttctc ctaccggca 240  
gggaatgtgg agagcaccgg ttctgctggg gagcctctgt atgagaactc ccagagttc 300  
acaccttacc tggagacaaa cctcggacag ccaacaattc agagtgttga acaggtggga 360  
acaaaagtga atgtgaccgt agaagatgaa cggacttttag tcagaaggaa caacactttc 420  
ctaagcctcc gggatgtttt tggcaaggac ttaatttata cactttatta ttggaaatct 480  
tcaagttcag gaaagaaaac agccaaaaca aacactaatg agtttttgat tgatgtggat 540  
aaaggagaaa actactgttt cagtgttcaa gcagtgattc cctcccgaac agttaaccgg 600  
aagagtacag acagcccggg agagtgtatg ggccaggaga aaggggaatt cagaggtaac 660  
ggaagagcac atgca 675

<210> 12  
<211> 684  
<212> DNA  
<213> Artificial

<220>  
<221> Nucleotide sequence of tTF-GALNGRSHAG

<400> 12  
tcaggcacta caaatactgt ggcagcatat aatttaactt ggaaatcaac taatttcaag 60  
acaatttttg agtggaacc caaaccgctc aatcaagtct acactgttca aataagcact 120  
aagtcaggag attggaaaag caaatgcttt tacacaacag acacagagtg tgacctcacc 180

gacgagattg	tgaaggatgt	gaagcagacg	tacttggcac	gggtcttctc	ctacccgcca	240
gggaatgtgg	agagcaccgg	ttctgctggg	gagcctctgt	atgagaactc	cccagagttc	300
acaccttacc	tggagacaaa	cctcggacag	ccaacaattc	agagttttga	acaggtggga	360
acaaaagtga	atgtgaccgt	agaagatgaa	cggacttttag	tcagaaggaa	caacactttc	420
ctaagcctcc	gggatgtttt	tggcaaggac	ttaattttata	cactttatta	ttggaaatct	480
tcaagttcag	gaaagaaaac	agccaaaaca	aacactaatg	agtttttgat	tgatgtggat	540
aaaggagaaa	actactgttt	cagtgttcaa	gcagtgattc	cctcccgaac	agttaaccgg	600
aagagtacag	acagcccggc	agagtgtatg	ggccaggaga	aaggggaatt	cagaggtgct	660
ttaaatggaa	gatctcacgc	tggt				684

<210>	13
<211>	675
<212>	DNA
<213>	Artificial

```
<220>
<221> Nucleotide sequence of tTF-GCNGRCG
```

<400>	13						
tcaggcacta	caaatactgt	ggcagcatat	aattttaactt	ggaaatcaac	taattttcaag		60
acaatttttg	agtgggaacc	caaaccctgc	aatcaagtct	acactgttca	aataagcact		120
aagtcaggag	atttgaaaag	caaatgcttt	tacacaacag	acacagagtg	tgacctcacc		180
gacgagattg	tgaaggatgt	gaagcagacg	tacttggcac	gggtcttctc	ctaccgggca		240
gggaatgtgg	agagcaccgg	ttctgctggg	gagcctctgt	atgagaactc	cccagagttc		300
acaccttacc	tggagacaaa	cctcggacag	ccaacaattc	agagttttga	acaggtggga		360
acaaaagtga	atgtgaccgt	agaagatgaa	cggacttttag	tcagaaggaa	caacactttc		420
ctaagcctcc	gggatgtttt	tggcaaggac	ttaattttata	cactttatta	ttggaaatct		480
tcaagttcag	gaaagaaaac	agccaaaaca	aacactaatg	agtttttgat	tgatgtggat		540
aaaggagaaa	actactgttt	cagtgttcaa	gcagtgattc	cctcccgaac	agttaaccgg		600
aagagtacag	acagcccggg	agagtgtatg	ggccaggaga	aaggggaatt	cagaggctgc		660
aacggtagat	gtggt						675

<210> 14  
 <211> 696  
 <212> DNA  
 <213> Artificial

<220>  
 <221> Nucleotide sequence of tTF-GCNGRCVSGCAGRC

<400> 14  
 tcaggcacta caaatactgt ggcagcatat aatttaactt ggaaatcaac taatttcaag 60  
 acaatttttg agtggaacc caaaccgctc aatcaagtct acactgttca aataagcact 120  
 aagtcaggag attggaaaag caaatgcttt tacacaacag acacagagtg tgacctcacc 180  
 gacgagattg tgaaggatgt gaagcagacg tacttggcac gggctcttctc ctaccggca 240  
 gggaatgtgg agagcaccgg ttctgctggg gagcctctgt atgagaactc cccagagttc 300  
 acaccttacc tggagacaaa cctcggacag ccaacaattc agagttttga acagggtggga 360  
 acaaaagtga atgtgaccgt agaagatgaa cggacttttag tcagaaggaa caacactttc 420  
 ctaagcctcc gggatgtttt tggcaaggac ttaatttata cactttatta ttggaaatct 480  
 tcaagttcag gaaagaaaac agccaaaaca aacactaatg agtttttgat tgatgtggat 540  
 aaaggagaaa actactgttt cagtgttcaa gcagtgttc cctcccgaac agttaaccgg 600  
 aagagtacag acagcccggt agagtgtatg ggccaggaga aaggggaatt cagaggttgt 660  
 aatggaagat gtgtttctgg atgtgcagga cgatgt 696

<210> 15  
 <211> 684  
 <212> DNA  
 <213> Artificial

<220>  
 <221> Nucleotide sequence of tTF-GCVLNGRMEC

<400> 15  
 tcaggcacta caaatactgt ggcagcatat aatttaactt ggaaatcaac taatttcaag 60  
 acaatttttg agtggaacc caaaccgctc aatcaagtct acactgttca aataagcact 120  
 aagtcaggag attggaaaag caaatgcttt tacacaacag acacagagtg tgacctcacc 180  
 gacgagattg tgaaggatgt gaagcagacg tacttggcac gggctcttctc ctaccggca 240  
 gggaatgtgg agagcaccgg ttctgctggg gagcctctgt atgagaactc cccagagttc 300  
 acaccttacc tggagacaaa cctcggacag ccaacaattc agagttttga acagggtggga 360  
 acaaaagtga atgtgaccgt agaagatgaa cggacttttag tcagaaggaa caacactttc 420  
 ctaagcctcc gggatgtttt tggcaaggac ttaatttata cactttatta ttggaaatct 480

```

tcaagttcag gaaagaaaac agccaaaaca aacactaatg agtttttgat tgatgtggat      540
aaaggagaaa actactgttt cagtgttcaa gcagtgattc cctcccgaac agttaaccgg      600
aagagtacag acagcccggt agagtgtatg ggccaggaga aaggggaatt cagaggatgc      660
gtcttaaata gtaggatgga atgc                                             684

```

```

<210> 16
<211> 45
<212> DNA
<213> Artificial

```

```

<220>

```

```

<221> 5' Oligonucleotide primer for the preparation of tTF1-218

```

```

<400> 16
catgccatgg gatcaggcac tacaaatact gtggcagcat ataat                      45

```

```

<210> 17
<211> 40
<212> DNA
<213> Artificial

```

```

<220>

```

```

<221> 3' Oligonucleotide primer for the preparation of tTF1-218

```

```

<400> 17
cgggatacta ttatctgaat tcccctttct cctggcccat                          40

```

```

<210> 18
<211> 45
<212> DNA
<213> Artificial

```

```

<220>

```

```

<221> 5' Oligonucleotide primer for the preparation of tTF-GRGDSP

```

```

<400> 18
catgccatgg gatcaggcac tacaaatact gtggcagcat ataat                      45

```

```

<210> 19
<211> 43
<212> DNA
<213> Artificial

```

```

<220>

```

<221> 3' Oligonucleotide primer for the preparation of tTF-GRGDSP

<400> 19

cgggataccta ttatggagaa tcacctcttc ctctgaattc ccc

43

<210> 20

<211> 45

<212> DNA

<213> Artificial

<220>

<221> 5' Oligonucleotide primer for the preparation of tTF-GNGRAHA

<400> 20

catgccatgg gatcaggcac tacaaatact gtggcagcat ataataat

45

<210> 21

<211> 46

<212> DNA

<213> Artificial

<220>

<221> 3' Oligonucleotide primer for the preparation of tTF-GNGRAHA

<400> 21

cgggataccta ttatgcatgt gctcttccgt tacctctgaa ttcccc

46

<210> 22

<211> 45

<212> DNA

<213> Artificial

<220>

<221> 5' Oligonucleotide primer for the preparation of tTF-GCNGRCG

<400> 22

catgccatgg gatcaggcac tacaaatact gtggcagcat ataataat

45

<210> 23

<211> 46

<212> DNA

<213> Artificial

<220>

<221> 3' Oligonucleotide primer for the preparation of tTF-GCNGRCG

<400> 23

cgggataccta ttaaccacat ctaccgttgc agcctctgaa ttcccc

46

<210> 24  
 <211> 45  
 <212> DNA  
 <213> Artificial

<220>

<221> 5' Oligonucleotide primer for the preparation of tTF-GCNGRCVSGCAGRC

<400> 24  
 catgcatgg gatcagggac tacaaatact gtggcagcat ataat 45

<210> 25  
 <211> 67  
 <212> DNA  
 <213> Artificial

<220>

<221> 3' Oligonucleotide primer for the preparation of tTF-GCNGRCVSGCAGRC

<400> 25  
 cgggataccta ttaacatcgt cctgcacatc cagaaacaca tcttcatta caacctctga 60  
 attcccc 67

<210> 26  
 <211> 45  
 <212> DNA  
 <213> Artificial

<220>

<221> 5' Oligonucleotide primer for the preparation of tTF-GCVLNGRMEC

<400> 26  
 catgcatgg gatcagggac tacaaatact gtggcagcat ataat 45

<210> 27  
 <211> 55  
 <212> DNA  
 <213> Artificial

<220>

<221> 3' Oligonucleotide primer for the preparation of tTF-GCVLNGRMEC

<400> 27  
 cgggataccta ttagcattcc atcctacat ttaagacgca tcctctgaat tcccc 55

<210> 28  
 <211> 45  
 <212> DNA  
 <213> Artificial

<220>

<221> 5' Oligonucleotide primer for the preparation of tTF-GALNGRSHAG

<400> 28  
catgccatgg gatcaggcac tacaaatact gtggcagcat ataat 45

<210> 29  
<211> 55  
<212> DNA  
<213> Artificial

<220>  
<221> 3' Oligonucleotide primer for the preparation of tTF-GALNGRSHAG

<400> 29  
cgggatccta ttaaccagcg tgagatcttc catttaaagc acctctgaat tcccc 55

<210> 30  
<211> 45  
<212> PRT  
<213> Artificial

<220>  
<221> Amino acid sequence of the affinity-tag

<400> 30  
His His His His His Ser Ser Gly Leu Val Pro Arg Gly Ser Gly  
1 5 10 15  
Met Lys Glu Thr Ala Ala Ala Lys Phe Glu Arg Gln His Met Asp Ser  
20 25 30  
Pro Asp Leu Gly Thr Asp Asp Asp Asp Lys Ala Met Gly  
35 40 45

<210> 31  
<211> 269  
<212> PRT  
<213> Artificial

<220>  
<221> Amino acid sequence of tTF-GRGDSP having an N-terminal affinity-tag

<400> 31  
His His His His His His Ser Ser Gly Leu Val Pro Arg Gly Ser Gly  
1 5 10 15  
Met Lys Glu Thr Ala Ala Ala Lys Phe Glu Arg Gln His Met Asp Ser  
20 25 30  
Pro Asp Leu Gly Thr Asp Asp Asp Asp Lys Ala Met Gly Ser Gly Thr  
35 40 45



Thr Asn Thr Val Ala Ala Tyr Asn Leu Thr Trp Lys Ser Thr Asn Phe  
 50 55 60  
 Lys Thr Ile Leu Glu Trp Glu Pro Lys Pro Val Asn Gln Val Tyr Thr  
 65 70 75 80  
 Val Gln Ile Ser Thr Lys Ser Gly Asp Trp Lys Ser Lys Cys Phe Tyr  
 85 90 95  
 Thr Thr Asp Thr Glu Cys Asp Leu Thr Asp Glu Ile Val Lys Asp Val  
 100 105 110  
 Lys Gln Thr Tyr Leu Ala Arg Val Phe Ser Tyr Pro Ala Gly Asn Val  
 115 120 125  
 Glu Ser Thr Gly Ser Ala Gly Glu Pro Leu Tyr Glu Asn Ser Pro Glu  
 130 135 140  
 Phe Thr Pro Tyr Leu Glu Thr Asn Leu Gly Gln Pro Thr Ile Gln Ser  
 145 150 155 160  
 Phe Glu Gln Val Gly Thr Lys Val Asn Val Thr Val Glu Asp Glu Arg  
 165 170 175  
 Thr Leu Val Arg Arg Asn Asn Thr Phe Leu Ser Leu Arg Asp Val Phe  
 180 185 190  
 Gly Lys Asp Leu Ile Tyr Thr Leu Tyr Tyr Trp Lys Ser Ser Ser Ser  
 195 200 205  
 Gly Lys Lys Thr Ala Lys Thr Asn Thr Asn Glu Phe Leu Ile Asp Val  
 210 215 220  
 Asp Lys Gly Glu Asn Tyr Cys Phe Ser Val Gln Ala Val Ile Pro Ser  
 225 230 235 240  
 Arg Thr Val Asn Arg Lys Ser Thr Asp Ser Pro Val Glu Cys Met Gly  
 245 250 255  
 Gln Glu Lys Gly Glu Phe Arg Gly Arg Gly Asp Ser Asp  
 260 265

<210> 32  
 <211> 270  
 <212> PRT  
 <213> Artificial

<220>  
 <221> Amino acid sequence of tTF-GNGRAHA having an N-terminal affinity-tag

<400> 32  
 His His His His His His Ser Ser Gly Leu Val Pro Arg Gly Ser Gly  
 1 5 10 15

Met Lys Glu Thr Ala Ala Ala Lys Phe Glu Arg Gln His Met Asp Ser  
 20 25 30

Pro Asp Leu Gly Thr Asp Asp Asp Asp Lys Ala Met Gly Ser Gly Thr  
 35 40 45  
 Thr Asn Thr Val Ala Ala Tyr Asn Leu Thr Trp Lys Ser Thr Asn Phe  
 50 55 60  
 Lys Thr Ile Leu Glu Trp Glu Pro Lys Pro Val Asn Gln Val Tyr Thr  
 65 70 75 80  
 Val Gln Ile Ser Thr Lys Ser Gly Asp Trp Lys Ser Lys Cys Phe Tyr  
 85 90 95  
 Thr Thr Asp Thr Glu Cys Asp Leu Thr Asp Glu Ile Val Lys Asp Val  
 100 105 110  
 Lys Gln Thr Tyr Leu Ala Arg Val Phe Ser Tyr Pro Ala Gly Asn Val  
 115 120 125  
 Glu Ser Thr Gly Ser Ala Gly Glu Pro Leu Tyr Glu Asn Ser Pro Glu  
 130 135 140  
 Phe Thr Pro Tyr Leu Glu Thr Asn Leu Gly Gln Pro Thr Ile Gln Ser  
 145 150 155 160  
 Phe Glu Gln Val Gly Thr Lys Val Asn Val Thr Val Glu Asp Glu Arg  
 165 170 175  
 Thr Leu Val Arg Arg Asn Asn Thr Phe Leu Ser Leu Arg Asp Val Phe  
 180 185 190  
 Gly Lys Asp Leu Ile Tyr Thr Leu Tyr Tyr Trp Lys Ser Ser Ser Ser  
 195 200 205  
 Gly Lys Lys Thr Ala Lys Thr Asn Thr Asn Glu Phe Leu Ile Asp Val  
 210 215 220  
 Asp Lys Gly Glu Asn Tyr Cys Phe Ser Val Gln Ala Val Ile Pro Ser  
 225 230 235 240  
 Arg Thr Val Asn Arg Lys Ser Thr Asp Ser Pro Val Glu Cys Met Gly  
 245 250 255  
 Gln Glu Lys Gly Glu Phe Arg Gly Asn Gly Arg Ala His Ala  
 260 265 270